UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 12 1992

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM:

Subject: Review of potential Occupational and Residential Exposure to Allium Sativum (garlic) for the Reregistration Eligibility Document (RED).

To: Esther Saito, Chief
Science Administration Section
Science Analysis & Coordination Branch (SACB)
HED (H7509C)

From: James Yowell, Senior Scientist
Reregistration Section II
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

Thru: Alan Nielsen, Chief
Reregistration Section II
Occupational and Residential Exposure Branch
Health Effects Division (H7509C)

Thru: Charles L. Trichilo, Ph.D., Chief
Occupational and Residential Exposure Branch
Health Effects Division

Chemical: Allium Sativum (garlic)

Case#: 4007

Chemical#: 128827

Company: Sevana, Company

Defer to:
_____ **Biological Analysis Branch/BEAD**
_____ **Accelerated Reregistration Branch/SRRD**
_____ **TB-Insecticide/Rodenticide Support Section**
_____ **TB-Herbicide/Fungicide/Antimicrobial**

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OCCUPATIONAL AND RESIDENTIAL EXPOSURE

Based on the use profile provided by BEAD and SRRD, garlic is used to repel birds and insects in a variety of fruit, nut, and citrus trees, vegetables, vine crops, berries, grains, roses, flowers, and shrubs. Garlic is formulated as a dust, liquid concentrate and granular formulations containing 5-24% garlic a.i. and 12-36% ground red pepper a.i. (Capsicum spp.). There is also a 100% garlic water a.i. liquid product. The dust formulations are applied at planting, two days prior to harvest or whenever needed to repel birds and the liquid formulations can be sprayed every 7 or 8 days as needed to repel insects.

The dust and granular formulations are applied using a shaker duster in a band over the top of seedlings, a granular applicator at time of seeding, or onto the foliage of crops prior to harvest. A minimum rate of 20 pounds per acre of the 5% garlic/12% pepper a.i. product is used at seeding and a rate of up to 50 pounds per acre of this product are used when fruits begin to color but 7 days before harvest. The liquid formulations are applied to repel insects by diluting them with water and applying by ground or air to cover foliage. The 100% a.i. garlic water is diluted in a ratio of 1 gallon of product to 10 gallons of water and the 24% garlic a.i./36% pepper a.i. is diluted in a ratio of 1 gallon product to 250-450 gallons of water. The label directions specify a minimum number of gallons per acre for the various crops.

The label limitations specified in the use profile are as follows:

Dust Formulations

For the dust formulations the signal word is "CAUTION" and the standard label language for this signal word appears on the label. Additional precautionary statements appear on the side panels including "Not for human consumption. May cause eye and skin irritation. Avoid contact with eyes, skin, or clothing. If in eyes, flush with water for 15 minutes. Consult a physician if irritation persists. If on skin, wash with soap and water."

Liquid Formulations

For the liquid formulations the signal word is "CAUTION" and the standard label language for this signal word appears on the label. "Not for human consumption. May cause eye and skin irritation. Avoid contact with eyes, skin, or clothing. If in eyes, flush with water for 15 minutes. Consult a physician if irritation persists. If on skin, wash with soap and water."

Based on the application methods and formulation types, the potential for dermal and inhalation exposure to the mixer/loader/applicator does exist. In addition, the potential for postapplication exposure may be significant for the foliar treatments applied prior to harvest.

OPP's Biotechnology Work Group recommends that garlic be classified as a biochemical pesticide (1).

Based on discussions with Esther Saito and Tom McClintock of SACB (2), the toxicity of garlic is well established and no toxicity concerns for the current uses of garlic were identified. Therefore, no dermal or inhalation exposure data are required.

CONCLUSIONS

Based on the lack of toxicological concern as provided in conversations with SACB, OREB has no data or product labeling concerns at this time and defers this case to SACB for any further evaluation.

cc: Winston Dang/OREB
Tom McClintock/SACB
Chemical File
Correspondence
Circulation

1. Memorandum from J. Thomas McClintock, dated November 26, 1991.

2. Based on discussion with Esther Saito of SACB, on 1/13/92, and Tom McClintock of SACB, on 1/23/92, there are minimal tox concerns or data requirements for garlic at this time.